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Memo

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SUBJECT: Measuring transverse and longitudinal joint saw cut depth in concrete

As Mn/DOT and local Agencies continue to move towards constructing thinner pavements (ie. < 7 inches) for unbonded concrete overlay and whitetopping, in some very isolated cases we have seen some longitudinal cracking that does not appear to be subgrade related as is usually the case with longitudinal cracking.

In our investigation, we have noted that the longitudinal joints were not sawed deep enough in all cases. Colorado and Iowa have also had some similar experiences with some of their pavements. Since Iowa has been constructing the thinner pavements with the 6 x6 panels, they are finding the longitudinal joint is not always cracking and they are getting random longitudinal cracks.

The standards plans 5-297.221 Sheet 1 (http://dotapp7.dot.state.mn.us/edms/download?docId=914097) and Sheet 2 (http://dotapp7.dot.state.mn.us/edms/download?docId=914098) are very clear as to the minimum saw cut depth for these joints.

For transverse joints in new construction – the joint depth should be t/4 (1/4 of the pavement thickness).

For transverse joints in concrete overlays – the joint depth should be t/3 (1/3 of the pavement thickness)

For all longitudinal joints – the joint depth should be t/3 (1/3 of the pavement thickness)

Remember on projects where we correct the cross slope in concrete – the centerline longitudinal joint is deeper than the transverse joint – it is important to ensure the Contractor is making adjustments in their sawing operation to adjust for this. In transverse joints where we correct the cross slope the t/3 measurement should be based on the minimum thickness of the pavement.

A thin plastic ruler would be accurate enough to randomly take some saw cut depth measurements, another option would be the thin steel ruler that is used with the beam breakers. **I would suggest randomly checking the joints at least 1 time per day during paving.** Document the saw cut depths in your construction field diary.